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Present invention relates to a panel, particularly intended for the inner preparing of the doors of vehicle, like its manufacturing method.

Although particularly planned for motor vehicles, it could also be used in any maritime, aerial and/or terrestrial vehicle type.

Of broader manner, it will find its applying in all the sectors of the economic activity in which one is brought to meet panels of preparing.

Currently, in the automotive field, one knows panels comprising a heart presenting a part of coating locally. In order to ensure a connection, whose aesthetic appearance is satisfying, between the outer surface of the aforesaid heart and that of the aforesaid part of coating, this last is generally provided with a skirt which is inserted in a throat envisaged in the heart. The edges of the part of coating are thus dissimulated at the bottom of the aforesaid throat.

Although sometimes satisfying, such panels often present alterations at the level of the periphery of their part of coating.

Indeed, these last is made up, in the majority of the cases, of an insert covered with a skin. Thus, during the manufacture of the panels, of the material infiltrates between the aforementioned skin and the aforementioned insert and, in spite of the function dissimulative of the throat, involves the formation of visible burrs on the circumference of the part of coating.

Such panels thus do not present any more one sufficiently satisfying aesthetic appearance to be marketed and must be put at the rebus. It is besides to note that the costs generated by such defects are particularly substantial, their occurrence taking place into fine of cycle whereas the panel is fully made up. They also oblige to multiply the number of control operations.

The purpose of the present invention is to propose a comprising panel a heart, presenting at least locally an aesthetic region of appearance and/or comfort, as its manufacturing method which mitigate the aforesaid disadvantages and make it possible to protect the aforementioned region during manufacture from the panel.

Another purpose of the present invention is to propose a manufacturing method of a comprising panel a heart, presenting at least locally an aesthetic region of appearance and/or comfort, which makes it possible to be freed from the plays of manufacture of the aforesaid heart to the level of the periphery of the aforesaid region.

Other purposes and advantages of the present invention will appear during the description which will follow which is given only as an indication and the purpose of which is not limiting it.

Present invention relates to a panel, particularly intended for the inner of the doors of vehicle, comprising preparing a heart, presenting at least locally a region of appearance aesthetic and/or comfort made up, at least on part of its periphery, at least of an insert and a skin, the aforementioned region being provided, at least with the level of the aforesaid part of its periphery, at least partially, of a skirt, being inserted in a throat envisaged in the heart, characterized by the fact that the aforementioned skirt present, on at least part of its length, a foot, adapted to protect the aforementioned region from a material return during manufacture of the panel.

Present invention relates to also a manufacturing method of panel, particularly intended for the inner of the doors of vehicle, comprising preparing a heart, presenting at least locally an aesthetic region of appearance and/or comfort; constituted, at least on part of its periphery, at least of an insert and a skin, the aforementioned region being provided, at least with the level of the aforesaid part of its periphery, at least partially, of a skirt, inserted in a throat envisaged in the heart, method implementing a mould, comprising a low die and an upper die defining between them an air-gap, characterized by the fact that:

one forms the aforementioned region while envisaging, on at least a part of the length of the aforesaid skirt, a foot, one injects into the aforementioned mould, at least under the aforementioned region, a resin, adapted to form the heart of the panel, the aforementioned foot being then adapted to protect the aforementioned region from a material return.

The invention will be included/understood better with the reading of the following description accompanied by the drawings in appendix which make integral part of it.

Figure 1 watch, in perspective, an example of panel, partially represented, in conformity with the invention.

Figure 2 is a view of top according to figure 1.

Figure 3 illustrates, for cut according to axis III-III represented on figure 2, a step of an example of implementation of the method in conformity with the invention.

Present figure 4, according to the same axis of cut, another step of the aforesaid example of implementation of the method conforms to the invention.

Present invention relates to first of all a panel, particularly intended for the inner preparing of the doors of vehicle.

Although particularly planned for motor vehicles, it could also be used for any maritime, aerial and/or terrestrial vehicle type. Of more general manner, it will find its applying in all the fields of the economic activity in which one is brought to meet panels of preparing.

On figures 1 and 2, one notes that the panel, conforms to the invention, includes/understands a heart 1 presenting at least locally an aesthetic region 2d' appearance and/or of comfort.

By panel, one understands, of general manner, part of which the thickness is low with respect to its other dimensions and presenting, as well a substantially flat profile as a profile into hollow and/or hump more or less curved.

According to the example represented, heart 1 is prolonged beyond region at least 2 along two on its sides and thus constitutes, particularly, a frame around deladite region 2.

So as to reinforce the overall aesthetic appearance of the panel, the aforementioned frame can, according to certain embodiments, be treated besides on its outer surface, i.e. that being same side that region 2, so as to allow, particularly, that it is painted and/or provided with a sleeving.

The aesthetic region 2d' appearance and/or of comfort constitutes, for example, at least partially, a part of coating of heart 1.

This subject, one understands by region of comfort, region of the panel offering a flexible and/or marrowy contact to the touch.

The aforementioned region 2 is made up, at least on part of its periphery, at least of an insert 3 and a skin 4. It is provided, moreover, at least into the level of the aforesaid part of its periphery, at least partially, of a skirt 5, is inserted in a throat 6 envisaged in heart 1.

The aforementioned skirt 5 is thus, for example, subjugated with the one of the sides of the aforesaid throat 6.

If one refers now on figures 3 and 4, one notes that, in accordance with the invention, the aforementioned skirt 5 present, on at least part of his length, a foot 7, adapted to protect the aforementioned region 2d' a return from material during manufacture of the panel. Thanks to the presence of the aforesaid foot 7, the aforementioned region 2 cannot thus be degraded any more and the aesthetic appearance of the panel obtained is particularly satisfying.

According to the mode illustrated of effecting of the invention, region 2 is provided, for example, of a skirt 5 whole along to less both on its sides envisaged in opposite and each one of the aforesaid skirts 5 present a foot 7 over all their length.

This last constitutes thus, for example, an extension of region 2, directed of oblique manner compared to skirt 5, the distal end of the aforesaid foot 7 being directed towards the outer one of the aforesaid region 2.

According to the illustrated example, the aforementioned foot 7 is thus directed substantially parallel to the bottom of throat 6.

That being, the aforementioned skirt 5 and the aforementioned foot 7 are made up, as represented, particularly of the aforesaid insert 3 and of the aforesaid skin 4.

According to another embodiment, foot 7 is formed only insert 3.

In addition, heart 1 and insert 3 are made up, for example same material. It could be a question, particularly of a thermoplastic resin such as, inter alia polypropylene. The adhesion of these two layers will be thus facilitated.

However, it will be necessary to take care, during the manufacture of the panel, not to be likely to damage skin 4. For that, one will be able to envisage, particularly, the presence of agents adapted to lower the thermal conductivity of the resin forming insert 3 so that the temperature used during the injection of heart 1 does not involve deformation of region 2.

According to another embodiment, insert 3 consists of a composite material panel, particularly formed cellulosic fibres.

Skin 4 includes/understands, for example, an outer layer of or not woven woven textile material and/or an intermediate layer, particularly formed of foam, adapted to reinforce the properties of flexibility of the aforesaid skin 4. It could be a question, for example, of foam polyurethane.

Present invention relates to also a manufacturing method of panels as described above.

As represented on figures 3 and 4, it implements a mould 8, comprising a low die 9 and one upper die 10, defining between them an air-gap 11.

The aforementioned mould 10 present also, for example, in one of the matrixes low or upper 9, 10, at least a projection 12, cooperating with a notch 13, envisaged in the other of the matrixes low or upper 9, 10, so as to allow the formation of throat 6 of the panel.

In accordance with the invention, one forms region 2 while envisaging, on at least a part of the length of skirt 5, a foot 7 and one injects into the aforementioned mould 8, at least under the aforementioned region 2, a resin, adapted to form heart 1 of the panel, the aforementioned foot 7 being then adapted to protect the aforementioned region 2d' a return from material.

As evoked higher, one avoids thus that the aforementioned resin infiltrates by the outer edge of the skirt between skin 4 and insert 3 of region 2 and degrades the appearance of the panel by the presence of burrs to the level of the aforesaid region 2.

To still improve these results, one can possibly, during his injection, to create a current in air-gap 11 with the aforementioned resin adapted to constitute heart 1, as illustrated by the arrow marked 14, so as to locally plate foot 7 against projection 12, adapted to take part in the formation of throat 6, by thus producing with the aforementioned foot 7 a virtual joint of sealing.

Indeed, under the pressure of the material of the aforesaid the resin adapted to constitute heart 1, still soft, region 2 is slightly deformed and foot 7 functions then like a joint of sealing, fascinating support against the aforementioned projection 12 hermetically blocking any material return with the level of skirt 5.

According to the example represented, one envisages a foot 7 of slightly upper width to the width of projection 12. The aforementioned foot 7 then makes it possible, moreover, to compensate for the plays of manufacture of the panel to the level of throat 6.

According to other embodiments', one can also envisage a foot 7 of larger width and going up on the side of throat 6 facing that occupied by skirt 5.

In addition, one envisages, possibly, in mould 8, injection points 15 of the resin adapted to constitute heart 1 and one positions the aforementioned region 2 above of the aforesaid injection points 15.

The aforementioned resin is thus injected, for example according to the arrow marked 16, under the region 2 and plate foot 7 against projection 12 before its arrival beyond the distal end of the aforesaid foot 7.

So as to facilitate such a positioning of region 2, this last is provided, for example of studs 17, directed substantially orthogonally with the panel, adapted with coop  r with reserving 18 envisaged in mould 8.

The aforementioned studs 17 also contribute, particularly, to improve solidity and the facility of fixing of the aforesaid panel.

According to a mode particular of effecting of the invention, one forms heart 1 by injection-compression, particularly in order to facilitate the adhesion between the aforementioned heart 1 and insert 3 of region 2.

Naturally, other implementations of the present invention to the span of the man of the art, could have been considered without for leaving the frame of the present application as much.